



News

go

Investing

go

Careers

go

Leisure

go

THE GLOBE AND MAIL

globeandmail.com

[Home](#) | [Business](#) | [National](#) | [International](#) | [Sports](#) | [Features](#) | [Review](#) | [Forums](#) | [Wheels](#)

Go to Breaking News

Today's Weather

Globe 7-day Search

 Go

[Tips](#) | [What Can I Search?](#)
[Subject Index](#)

Search the Web

 Go

powered by

Contents

► **Full Site Index**
 Click for a detailed list of
 everything on the site.

Main Sections

► **Report on Business**► **National**► **International**► **Sports**► **Technology**► **Globe Review**► **Travel** new► **Features**► **Comment**► **Forums**► **Focus**► **Books**► **Appointments**

Other Sections

► **Classifieds**

• AD MAIL

► **Globetrotter**► **Campus**► **Wheels**► **Real Estate**► **Health**► **Science**► **Environment**► **Education**► **Obituaries**► **Births & Deaths**► **Toronto News**

Specials & Series

► **All Reports...**► **Entertainment**► **Cartoon**► **Crosswords**► **Horoscopes**

Search Results

E-mail this article

Superior, but for how much longer?

The greatest of the **Great Lakes** is ebbing away, and could come dangerously close to its record low this year, MARTIN MITTELSTAEDT reports. Is it all part of Nature's plan, or has global warming taken hold?

MARTIN MITTELSTAEDT

Source: National Oceanic and Atmospheric Administration;; **Great Lakes** Environmental Research Lab.

Saturday, April 7, 2001

The sheer size of mighty Lake Superior, with its majestic granite shores, produces storms and waves that are among the most formidable on the planet. The world's second-largest lake (after the Caspian Sea) has conquered many a ship, including, most famously, the Edmund Fitzgerald.

But this spring, Lake Superior is a little less majestic. In what could be an ominous harbinger of global warming, the greatest of the **Great Lakes** is nearing the lowest water levels for this time of year since 1926.

Superior isn't alone. Lakes Michigan and Huron have been hit too. Water levels on the three upper **Great Lakes** are plunging for the fourth straight year, according to the joint Canadian-U.S. body that oversees the system.

The International Joint Commission says Lakes Michigan and Huron, which rise and fall as one water body, are more than 60 centimetres below average and have not been lower at this time of

Globe Forums

► **Parliamentary Ethics**

Columnist Edward Greenspon has come up with three suggestions. What do you think?

[[Join In](#)]

► **NHL playoffs - Ask Eric**

Post your views and questions on the upcoming fight for Lord Stanley's mug. Globeandmail.com's Eric Duhatschek will be online today at 2 p.m. EDT to answer them.

[[Join In](#)]

Current Markets

Enter Canadian or U.S. stock symbol(s) or market index:

 Go

[Stock symbol lookup](#)

Sponsored by:



TSE 300	+41.35	7516.10
DJIA	+9.94	9801.03
S&P500	+3.35	1131.78
Nasdaq	-5.0	1715.3
CDNX	-10.80	2896.2
FTSE100	+61.80	5663.3
Nikkei	-542.0	12841.8
HSeng	-185	12202
DJ Net	+1.96	63.06

Delayed 20 minutes. [Help](#).

Morning Smile

Ottawa's new

►TV Listings
►Food & Dining

Services

►Full Services Index

Click for a detailed list of everything on the site.

- Advertise: Newspaper
- Advertise: Web Sites
- Customer Service
- Corrections
- E-mail Newsletters
- Free Headlines
- Help & Contact Us
- Make Us Home
- Mobile **new**
- Press Room
- Privacy Policy
- Reprints
- Subscriptions

Globe Web Centre

►News:

globeandmail
globetechnology
ROB magazine
ROBTV

►Investing:

globefund
globeinvestor
ROBTV

►Careers:

workopolis

►Leisure:

globemegawheels
globebooks
TV listings
Crosswords

year since the mid-1960s.

These decreases are in keeping with almost all models that forecast what global warming might do to the **Great Lakes**, the world's largest system of fresh water.

"There is considerable concern," said Ralph Moulton, manager of the water-level information office at Environment Canada.

"It does look like the levels are going to be low on those lakes -- Lakes Superior and Huron, Georgian Bay and [Lake] St. Clair -- and will be lower this year than they were last year."

The new declines come after a particularly troubling episode of plunging levels in the Huron-Michigan system from 1998 to 2000, when the water dropped about a metre, at the fastest pace ever noted in 140 years of record keeping.

Scientists warn that dry conditions this year could cause Lake Superior to flirt with its record-low summer level -- hit in 1926 during a drought -- and near-record lows for Lakes Michigan and Huron.

Although it is too early to give accurate predictions for this summer, Environment Canada is forecasting that Ontario will have below-average precipitation this spring.

If there is little rainfall, "the lakes will be in trouble," said Cynthia Sellinger, a scientist at the **Great Lakes** environmental research laboratory of the U.S. National Oceanic and Atmospheric Administration in Ann Arbor, Mich. "You look at the levels [of Lake Superior] right now, it looks like probably in August, September, October, you could have record lows" if it is a dry season.

If the lakes do continue to dry up year after year, consequences for the 33 million Canadians and Americans who live in the **Great Lakes** Basin -- including shippers, boaters, and hydro-electric operators -- could be dramatic and costly.

It would also mean far-reaching changes in the wetlands and habitats that support the wildlife ecosystem that developed around the lakes since

medicare study is expected to reflect the federal government's ongoing commitment to one tier health-care: One tier for the rich and well-connected and one tier for the rest of us.

- Louis Desjardins, Belleville, Ont

they were created from glacial melt water beginning 12 millenniums ago.

But researchers caution that it is too early to say conclusively whether the current drop is a normal cyclical fluctuation or the start of a longer-term trend to lower water levels from human-caused climate change.

It is not unusual to have decade-long periods of relatively high water levels that are followed by declines. For instance, wet years led to extremely high lakes in the mid-1980s, while droughts in the 1930s, mid-1960s and the past few years meant low readings.

Water levels also change with the seasons, reaching a nadir in late winter, and then peaking in early summer as snow melt replenishes the lakes, when the full heat of summer has not yet begun to cause large losses from evaporation.

While the current drop is a concern, Chuck Southam, a water-resources engineer at Environment Canada, said: "It's a bit too early to say this is an impact of climate change because we still are within the historical range" of lake water levels.

And the news is not all bad. Lake Erie's level is moderately below average and Lake Ontario, the smallest of the five, is near its typical level for early spring.

But the declines in the big lakes have raised troubling questions about the cause.

While precipitation over the past year has been near normal, Ms. Sellinger says the snow melt -- the annual rush of water that replenishes the lakes every spring -- has been meagre.

This is because several thaws during the winter caused snow to melt and then evaporate, rather than to percolate into ground water and feed the streams and rivers that ultimately refill the lakes.

The water bodies did not have much ice cover this winter, either. Ice acts like a giant covering, minimizing the amount of water that evaporates. It

was the fourth year that the ice cover was less than long-term averages.

"The lakes, except for Erie, didn't ice over at all and ice protects the lakes from evaporation," Ms. Sellinger explained.

These two factors could be related to another climate-related observation: Since 1997, air temperatures in the **Great Lakes** area have been significantly above average.

Environment Canada's Mr. Moulton said part of the problem for the lakes is that the land in the basin area has yet to recover from a 1998-99 dry spell, and is behaving much like a sponge that has had all the water wrung out of it.

The land is sopping up precipitation to replenish ground-water levels, so water is not being added to the rivers that flow into the lakes. "The basin is essentially absorbing most of the moisture that comes down," Mr. Moulton said.

He said measurement gauges are finding that even when precipitation is average or slightly above average, the amount of water making it into the lakes remains below average.

This is in line with the general, long-term decline predicted by global-warming models, which typically say lake levels could fall anywhere from half a metre to about 2½ metres by 2100 compared with current averages if temperatures warm by the two to four degrees that are forecast.

If this is what is happening, it would mean a future where lakes are consistently lower than they have been during the past 100 years, when most big cities developed on their shores.

"There are a number of models, but the majority of them tend to point to, on average, lower lake levels," Mr. Southam said, adding that the average water levels of the future could end up being like the lows of today.

Low levels have a major impact on human activity around the lakes. Last year's declines caused problems for marinas, left the docks of many

cottagers high and dry, and prompted large-scale dredging.

Dredging worries environmentalists because it stirs up contaminants, now buried in mud, that were laid down during the high polluting period in the 1960s, before bans on toxins such as polychlorinated biphenyls.

Even lake freighters feel the impact of low water and last year were forced to carry lighter loads to prevent them from running aground, bearing 5 to 8 per cent less cargo such as iron ore, coal and other commodities.

But wildlife could face the biggest challenges from global warming. An assessment done by U.S. scientists on the potential effects of warmer water in the lakes indicated that the productivity of the biomass -- the total of all living matter in the water system -- could drop by 20 per cent.

A warming climate could also threaten fish that depend on cold-water stream habitat, such as walleye and trout, and undermine critical coastal wetlands on which many lake fish species depend for successful reproduction.

Not all impacts are bad, however. Those living near shore have less risk of suffering damage from flooding, while sun bathers will certainly find wider beaches to enjoy.

But among the first to feel the effects of low water levels, such as those in the recreational boating industry, react with gloom.

Bill Bowler, owner of the Owen Sound Marina on Georgian Bay, had to dredge last year to allow continued safe access to berths, a plight shared by many marine facilities.

While last year saw low lake levels, this year they are even worse, he said.

"It's the lowest level I've seen and I've been here for 20 years. The water is down substantially over last fall."

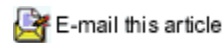
Less ice, less lake

The ice cover on the **Great Lakes** this winter is below average, even at its peak from Feb. 12 to March 1, according to preliminary data from the National Oceanic and Atmospheric Administration in Ann Arbor, Mich.

Limited freezing meant that more water was able to evaporate, contributing to the exceptionally low lake levels this spring. This winter was the fourth consecutive year in which the ice cover was below average.

By contrast, ice formed earlier and more extensively than normal during the winter of 1993-94, which was the coldest winter for the **Great Lakes** region since 1977 and the 21st coldest winter since 1779. Only in 11979 has greater ice cover been seen.

Ice cover usually never reaches 100 per cent, except for Lake Erie, which is the shallowest of the **Great Lakes** and has the second-smallest surface area. Winds normally break up and move the ice and stir up warmer water deep in the lakes.



[Subscribe to The Globe and Mail](#)

[Home](#) | [Business](#) | [National](#) | [International](#) | [Sports](#) | [Review](#) | [Books](#) | [Technology](#) | [Wheels](#)

Copyright © 2001 Globe Interactive, a division of Bell Globemedia Publishing Inc.
[Help & Contact Us](#) | [Back to the top of this page](#)